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ABSTRACT

A think-aloud instructional program was developed to help students acquire the ability to monitor their reading comprehension and to employ various strategies to deal with comprehension breakdowns. Several research studies indicate that comprehension monitoring abilities discriminate successful readers from less successful ones and that think-aloud instruction is superior to directed reading activity. Clark Canine, Super Reporter, a play on the Superman character, appears through the 10 lessons of the instructional program. Students are taught to see the role of the reader (one who interviews writers) as analogous to the role of a reporter (one who interviews people). Each of the lessons has three phases: an introduction consisting of an overview and verbal explanation of the strategy; a teacher modeling segment; and a guided application and independent practice period. The 10 lessons are: self questioning; sources of information; think-aloud introduction; think-aloud review; predicting, reading, and verifying; understanding unstated information; retelling a story; rereading and reading on; and two lessons involving think aloud/comprehension monitoring application. The instructional program can be modified or adapted in various ways in classrooms other than regular reading classrooms. Think alouds provide teachers an effective, useful, and flexible technique for helping students acquire control over their comprehension processing of written texts. (A figure of the Clark Canine character and a table listing lesson content are included; 28 references are attached.) (RS)

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Monitoring Reading Comprehension by Thinking Aloud

James F. Baumann Leah A. Jones Nancy Seifert-Kessell

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Monitoring Reading Comprehension by Thinking Aloud

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Instructional Resource No. 1
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In a recent study (Baumann, Seifert-Kessell, & Jones, 1992), we asked fourth-grade students to read an excerpt from Laura Ingalls Wilder's *On the Banks of Plum Creek*, in which Laura, playing in the hazardous, fast-running waters of Plum Creek, rolls off a footbridge and nearly drowns. As the students read the story aloud, we stopped them occasionally and asked "Can you tell me what you were doing or thinking about as you read this part of the story?" Consider the following sets of responses by two different groups of children. Ann, Kim, Sam, and Tom responded to our question, in part, as follows:

> ***Ann:*** I was asking questions, and I asked questions like "Why did she go to the creek when her mother told her not to?" And "Why did Laura take her shoes and socks off when she knew the creek was going to be rocky and muddy on the bottom?"
>
> ***Kim:*** I was asking myself "Is this making sense?" and I was asking if like [what] do I think what would happen next without reading the next page–just reading that [the present] page. [***Researcher:*** Can you tell me a bit more about this?] She'll probably go down there again and play when the water's down and when it's not so high and when it's not so like roaring and stuff.
>
> ***Sam:*** I retold what I read the first time to [page] 193 as I was reading the last part of the story to see if it would make sense.
>
> ***Tom:*** I was thinking that like when she wanted to get deeper and deeper in the

> water, then the water would probably try and take her off or something. And I really didn't know–in the beginning I didn't think I'd be right in what I thought . . . because it talked about so many other things. Then when I got further on in the story, then it started to make sense.

The students who gave these responses had participated in a group that had learned how to think aloud as they read stories. The intent behind the think-aloud lessons was to help them develop the ability to monitor their reading comprehension and employ strategies to guide or aid their understanding. And, indeed, in their responses, these children demonstrated that they were using various comprehension monitoring and fix-up strategies, such as self-questioning (Ann), asking if the story made sense (Kim), using retelling as a meaning construction technique (Sam), or offering hypotheses and reading on to verify or modify them (Tom).

In contrast, consider how Kate, Lynn, and Ron responded to our question "Can you tell me what you were doing or thinking about as you read this part of the story?":

> ***Kate:*** Nothing. [***Researcher:*** Nothing? What kind of ideas did you have as you read?] That her mom was very nice and understood that it could have killed her. [***Researcher:*** Any other ideas you had?] She was nice. [***Researcher:*** Anything else?] No.

> ***Lynn:*** Oh, trying to stop at every period and trying to pause at the commas. [***Researcher:*** Is there anything else you were trying to do as you read?] I was trying to read loud like instead of talking real soft and you couldn't hear me. [***Researcher:*** What else? Anything else you did or thought about as you were reading this section?] Not really.

> ***Ron:*** I kept saying "blank." [***Researcher:*** Can you tell me more about that? Why did you keep saying "blank?" (No student response.) What do you do to help you understand what you read?] Look at the pictures. [***Researcher:*** Can you think of anything else you do besides look at the pictures?] Ask a friend. [***Researcher:*** What kinds of things would you ask a friend?] If he could pronounce a word.

Kate, Lynn, and Ron had not received instruction in thinking aloud but instead read stories according to a conventional directed reading activity format. Rather than focusing on comprehension processes as did Ann, Kim, Sam, and Tom, these students emphasized literal comprehension (Kate), accurate oral reading (Lynn), or word identification strategies (Ron).

It is the purpose of this report to describe the think-aloud instructional program we developed to help students acquire the ability to monitor their reading comprehension and to employ various strategies to deal with comprehension breakdowns. First, we provide some background information about comprehension

monitoring and the think-aloud procedure. Second, we describe the instructional program and present a sample lesson from it. Third, we present suggestions for how teachers might adapt, modify, or extend think-alouds in classroom reading programs or in content area instruction.

COMPREHENSION MONITORING AND THINK ALOUDS

Most definitions of comprehension monitoring during reading specify two kinds of metacognitive, or reflective, knowledge a reader must possess: (a) the awareness of whether or not comprehension is occurring, and (b) the ability to consciously apply one or more strategies to correct comprehension difficulties (Baker & Brown, 1984; Garner, 1987; Paris, Lipson, & Wixson, 1983; Wagoner, 1983). Stated more simply, *comprehension monitoring* "concerns the student's ability both to evaluate his or her ongoing comprehension processes while reading through a text, and to take some sort of remedial action when these processes bog down" (Collins & Smith, 1982, p. 174).

Several research studies indicate that comprehension monitoring abilities discriminate successful readers from less successful ones (e.g., August, Flavell, & Clift, 1984; Brown, Armbruster, & Baker, 1986; Paris & Myers, 1981). Children who are able to reflect on whether or not comprehension is occurring and employ, as necessary, strategies such as self-questioning, predicting and verifying, retelling, rereading, or withholding judgment and reading on to clarify meaning are likely to understand, interact with, and retain information contained in written texts (see Paris, Wasik, & Turner, 1991).

Think alouds require a reader to stop periodically, reflect on how a text is being processed and understood, and relate orally what reading strategies are being employed. In other words, think alouds involve the overt, verbal expression of the normally covert mental processes readers engage in when constructing meaning from texts (see Afflerbach & Johnston, 1986; Ericsson & Simon, 1980, 1984; Garner, 1987). Several writers have proposed teaching students to think aloud while reading as a means to enhance comprehension monitoring abilities (Alvermann, 1984; Davey, 1983; Nist & Kirby, 1986). Their rationale has been that the process of thinking aloud during reading is itself a form of comprehension monitoring, and that think alouds offer an appropriate means to access and use various strategies for enhancing understanding.

We conducted a study (Baumann et al., 1992) to determine if thinking aloud is an effective technique for helping students learn to monitor their comprehension. In this study, we taught one group of fourth-grade students a variety of comprehension monitoring and fix-up strategies through the think-aloud technique, and they applied the strategies when reading realistic fiction stories. Students in comparison

groups read the same stories according to either the Directed Reading-Thinking Activity (Stauffer, 1976), which involved heavy emphasis on predicting and verifying, or the directed reading activity (Tierney, Readence, & Dishner, 1990), which involved introducing new vocabulary, activating or providing background knowledge, and guiding the students' reading of the selection through questioning.

Results from a series of quantitative assessments and in-depth, individual student interviews indicated that the think-aloud instruction was consistently superior to the directed reading activity. Further, we concluded that, while the Directed Reading-Thinking Activity had demonstrated some positive impact on students' comprehension monitoring, the think-aloud instruction was most effective in helping students acquire a broad range of strategies to enhance their understanding of text and to deal with comprehension difficulties. For example, during the interview at the end of the instructional program, we asked Tom, a student from the think-aloud group, what he did before reading "On the Banks of Plum Creek." Tom reported that he looked at the title, author name, and pictures, and then drew from prior knowledge and experience:

> I think it [the story] will probably be a really good one because I've read a whole bunch of books by Laura Ingalls Wilder, and it's probably about somebody that's out in the woods or something that's caught in a storm or something.

Further evidence of the success of the think-aloud instruction was provided during the interview when we asked students "What do you do to help you understand what you read?" Children from the think-aloud group reported that they used various comprehension monitoring and fix-up strategies, as the following comments show:

> ***Kim:*** When I read I think "Is this making sense?" I might . . . ask questions about the story and reread or retell the story. . . . I was asking myself "Is this making sense?" and I was asking if like do I think what would happen next without reading the next page.

> ***Tom:*** Oh, I either close the book and recite things or sometimes . . . I ask questions and try to remember everything in the story.

> ***Ann:*** I ask all the time "Is this making sense?" And like this week, I checked out a book and I looked at the title and I didn't really understand it. But once I got reading it, it made sense.

INSTRUCTION IN THINK ALOUDS

The instruction we provided the think-aloud group in our study involved a variety of strategies that included asking ques-

tions, drawing on prior knowledge, assessing comprehension by asking "Is this making sense?", predicting and verifying, inferring unstated ideas, retelling, and rereading and reading on to clarify meaning. We used think alouds to model for the students how to use these strategies, and we had the children use think alouds themselves to apply the strategies as they read the stories. It is important to point out, however, that we viewed think alouds as a *vehicle* for helping students to acquire control over these strategies. In other words, think alouds were a means to an end–improved comprehension monitoring ability–not the end itself.

An Instructional Heuristic

To encourage interest in and to demonstrate thinking aloud, we created the figure Clark Canine, Super Reporter (CC/SR), a play on the Superman character. CC/SR, who appeared throughout the ten think-aloud group lessons, was presented as a special kind of reporter who interviewed writers. The students were taught to see the role of a reader (one who interviews writers) as analogous to the role of a reporter (one who interviews people). Students were asked to think of themselves as Pup Reporters, novice writer-interviewers led by CC/SR.

CC/SR was displayed as a three-foot-tall cutout who held a notebook that presented the "think-aloud rules" (see Figure 1). Accompanying CC/SR was a large chart that showed how reporters and readers are alike (see Table 1). Progressively across the ten lessons, CC/SR was used to introduce pairs of items on cards that were affixed to the chart under the "Reporters" and "Readers" headings. During Lesson 1, for example, cards containing statements that reporters and readers are alike because they both conduct interviews by asking questions of writers or people were taped to the chart.

Ten Lessons

The think-aloud comprehension monitoring and fix-up strategies were introduced, taught, practiced, applied, and reviewed across ten lessons. Each lesson had three phases: (a) Phase 1, an introduction which consisted of an overview and verbal explanation of the strategy; (b) Phase 2, a teacher modeling segment in which we demonstrated the use of the strategy; and (c) Phase 3, a guided application and independent practice period in which students tried out the strategy on their own with decreasing teacher assistance.

To organize the lessons, we used the Baumann and Schmitt (1986) comprehension instructional format, which accounts for different types of metacognitive knowledge. Specifically, we told students *what* the strategy is, using description, definition, or example; we told them *why* the strategy is important and how its acquisition would make them better readers; we

Figure 1. Clark Canine, Super Reporter. Figure by Nancy Seifert-Kessell.

taught them *how* the strategy functions, through the sequence of verbal explanation, teacher modeling, guided practice, and independent practice; and we discussed *when* a strategy should and should not be used and how a reader might evaluate the effectiveness of a strategy. Synopses of the ten lessons follow.

Lesson 1: Self Questioning. After introducing CC/SR, we explained that just as reporters interview people by asking them questions, good readers likewise ask questions of writers. We modeled the questioning process, using the beginning of the story, and had the students share their self-questions while reading the remainder of the story. Although think alouds would not be introduced formally until Lesson 3, we modeled thinking out loud and had students employ it informally as they shared their questions

Lesson 2: Sources of Information. As an extension of Lesson 1, we taught the students a modified form of Raphael's (1982) question-answer relationship strategy. Specifically, students were taught that information can come from ideas "in the story" (i.e., textually explicit and textually implicit information) and that information can come from ideas a reader may already possess "on my own" (i.e., a reader's prior knowledge).

Lesson 3: Think-Aloud Introduction. This lesson formally introduced students to thinking aloud as they read. It is described in detail in the following sample lesson.

Table 1. Think Aloud Lesson Content and Think Aloud Instruction Chart

	INSTRUCTION CHART	
LESSON CONTENT	HOW REPORTERS AND READERS ARE ALIKE	
	REPORTERS...	READERS...
Lesson 1: Self-Questioning	Interview people by asking them questions.	Interview writers by asking them questions.
Lesson 2: Sources of Information	Get information from the person they interview and from what they already know.	Get information from the writer and from what they already know.
Lessons 3 and 4: Thinking Aloud	Think aloud and ask "Is this interview making sense?"	Think aloud and ask "Is this story making sense?"
Lesson 5: Predicting & Verifying	Predict what people will say and listen to check those predictions.	Predict what a writer will say and read to check those predictions.
Lesson 6: Unstated Information	Add information that the person leaves out.	Add information that the writer leaves out.
Lesson 7: Retelling	Retell in their own words what the person said.	Retell in their own words what the writer wrote.
Lesson 8: Rereading & Reading On	Ask the person to say things again or continue to listen when they get confused.	Reread or read on when they get confused.

Lesson 4: Think-Aloud Review. This was a cumulative review of the first three lessons.

Lesson 5: Predicting, Reading, and Verifying. We taught the students to use a predict-read-verify strategy (Baumann, 1991) as a means to guide comprehension and to deal with comprehension difficulties. They expressed their predictions and their evaluations of them through think alouds.

Lesson 6: Understanding Unstated Information. As an extension of Lesson 2, "Sources of Information," we taught the students to infer unstated information in a story according to a simplified version of the inference categories recommended by Johnson and Johnson (1986). Think alouds were used to verbalize what a writer omitted, drawing from story and experience clues.

Lesson 7: Retelling a Story. In this lesson, we explained to the students that a good strategy for helping them understand a story, especially when they become confused, is to retell or say in their own words what was read. Initially, short paragraphs were used in instruction and application; gradually, longer text segments (one or more pages of the story) were used. The lesson concluded with practice retelling the entire story.

Lesson 8: Rereading and Reading On. We linked Lesson 8 to Lesson 3 by reminding students to stop periodically while reading and to ask themselves "Is this story making sense?" When students responded negatively to this question, we suggested that they could either (a) reread a section to clarify meaning or (b) employ a read-on-and-withhold-judgment strategy as a way to deal with confusion.

Lessons 9 and 10: Think Aloud/Comprehension Monitoring Application. The final two lessons consisted of review instruction and guided practice of the contents of Lessons 1-8. Specifically, the teacher reviewed the seven items on the "How Reporters and Readers are Alike" instructional chart and then provided guided and independent practice in the use of these strategies as the students read each story.

A Sample Lesson

To provide an example of the think-aloud instruction, we describe in detail Lesson 3, "Think-Aloud Introduction: Is the Story Making Sense?" For this lesson—as in all lessons for all groups—the "researcher-teacher" (in this particular lesson, the first author) worked from a detailed lesson plan that outlined the structure and content for the lesson. The following is a reconstruction of Lesson 3 from that plan (see the Appendix in Baumann et al., 1992, for the plan for Lesson 3).

Phase 1. The teacher began Phase 1 by using the "How Reporters and Readers Are Alike" chart to briefly review what was taught in Lessons 1 and 2 about self-questioning and sources of information in comprehension. Next the teacher in-

formed the students that in this lesson they would learn how to improve their understanding of a story by saying out loud what goes on in their minds as they read–that is, by thinking aloud while reading. The teacher explained that the students would learn to do this by stopping occasionally as they read and asking themselves "Is this making sense?"

The teacher continued by explaining that thinking aloud is saying what is going on in one's mind as she or he tries to understand a story or solve a problem. The teacher referred to the think-aloud "rules," which were displayed on CC/SR's notebook, and also wrote them on the chalkboard:

To Help Me Read and Understand:

1. Say out loud what is going on in my mind as I read.
2. Ask myself "Is this making sense?"

He then asked the students if they ever thought aloud while doing a school task, for example, while doing a hard math problem or reading difficult directions. Students then shared their think-aloud experiences in a brief discussion.

Phase 2. The teacher demonstrated thinking aloud by writing the following verbal and mathematical analogies on the board and thinking aloud as he solved them:

dog : bark -----> cat : ???
[oink, meow, puppy, feline]

2 : 4 ---------> 5 : ???
[5, 10, 2, 8]

Teacher: [Pointing] Let's see. *Dog* is to *bark* as *cat* is to what? What fits there? Well, dogs bark and cats meow, so *meow* must go where the question marks are.

During the analogy-solving process, the teacher modeled asking "Is this making sense?" He then asked for volunteers to think aloud while solving the following analogies:

puddle : lake -----> hill : ???
[valley, ocean, mountain, bump]

20 : 10 -------> 50 : ???
[25, 150, 30, 100]

Student: "OK, 20 goes with 10, so what goes with 50? Maybe it's 150. Is that right? Twenty is two times 10. Is 50 two times 150? No, that can't be right. The second number must be smaller. Maybe it's 25. Yes, 50 is two times 25 just like 20 is two times 10."

The teacher next explained that thinking aloud can also be done during reading, and he affixed the Lesson 3 cards to the "How Readers and Reporters Are Alike" chart (see Table 1). Referring back to the "rules" on the board, he informed the students that it is important to think aloud while reading and to ask oneself "Is this making sense?" He explained that asking this question is important because it forces

a reader to check to see if she or he is understanding a story.

Next the teacher modeled thinking aloud while reading text from the story "Food's on the Table." In this story, a family of children are invited to their aunt's new apartment for supper but mistakenly enter a different family's apartment where no one is home. The children see a table set for dinner and eat the food that they believe their aunt set out for them.

Text: [Teacher reads story title, author's name, and introductory note.]

Food's on the Table
Sydney Taylor

Until a door is open, you don't know what's on the other side. Ella, her sisters, and her brother opened a door to a new apartment.

Teacher: I guess this story has something to do with eating and several children who go to an apartment. I wonder exactly where they're going and what this has to do with food? This isn't making a whole lot of sense yet. I guess I'll read on.

Text: [Teacher reads from beginning of actual story text.] Ella glanced at the slip of paper in her hand. "We want 725–it must be the next block."

Teacher: Maybe this takes place in a city, since Ella said "next block." I know apartments are in cities and they have numbers. I bet the slip of paper must tell where the apartment is. Maybe they are looking for apartment number 725. Is this making sense so far? I think so, but it's a little early to really decide. I'll read on, get more information, and find out.

Text: The girls–Ella, Henny, Sarah, Charlotte, and Gertie–and little Charlie were going to their aunt's new apartment for supper. Their mother would meet them there later.

Teacher: Well, I see how the apartment and food go together, since all the kids are going to their aunt's for supper. It sure is a big family–let's see, five girls and one boy. Is this making sense? It seems to, but I still have some questions, like will they find the apartment and what will they eat for supper? I'll read more.

Text: "Now," Ella said, "let's see. There is 721–723. Here it is–725. It's a nice-looking building."

Teacher: Whoops! I guess I was wrong about the 725. I don't think that's the apartment number. Instead I bet it's the address for the building, its street number. Also, my guess about this being in a city seems to be correct. Is this making sense? Yes, but I have some questions. I wonder what the kids will do next? Will they try to find their aunt's apartment? And what does this story have to do with food on the table?

The teacher modeled thinking aloud in this fashion for the first few pages of the

story, referring to the "rules" on the board. He also incorporated application of the preceding Lesson 2, which dealt with sources of information when reading.

Phase 3. Next the teacher began to turn responsibility for thinking aloud over to the students. After reading that Ella and her sisters and brother enter the empty apartment and see a table full of food, the teacher and students had the following exchange:

> ***Teacher:*** Anyone want to try reading and thinking aloud for us? [Student 1 offers an affirmative response.] Great. Go ahead with the next paragraph.
>
> ***Text:*** [Student 1 reads.] "Look, Ella," Sarah pointed. "There's a note on the table." She picked it up and read aloud: "I had to go shopping. I'll be a little late. Don't wait for me. Go ahead and eat."
>
> ***Student 1:*** I guess the kids' aunt wrote the note. I guess the kids can go ahead and eat the supper.
>
> ***Teacher:*** Is this making sense?
>
> ***Student 1:*** Uh huh.
>
> ***Teacher:*** Any ideas about what might happen next?
>
> ***Student 1:*** The kids will eat the supper, and they probably will get in trouble with their mother for not waiting.
>
> ***Student 2:*** I think they will wait for their aunt to get home.
>
> ***Teacher:*** Anyone else want to try reading and thinking aloud? [To Student 2] All right, give it a try.
>
> ***Text:*** [Student 2 reads.] "Well, that's that," remarked Henny. "Let's eat."
>
> "Oh, I don't think that would be very nice," Ella said. "Let's wait a little while."
>
> "We could finish setting the table," suggested Sarah. "Lena must have been in an awful hurry. There are no plates, and just three settings of silver."
>
> ***Student 2:*** I think I'm right. They are going to wait for their aunt because Ella said they should wait a while. I bet Ella is the oldest of them, the tall girl with the blue checked blouse on page 13.
>
> ***Teacher:*** Is this making sense to you?
>
> ***Student 2:*** Yes, I think so, but I think something tricky is going to happen.
>
> ***Teacher:*** Could you tell us more?
>
> ***Student 2:*** The part about there being only three sets of forks and knives. That mixes me up. The kids' aunt wouldn't set out only three of everything. There's a whole bunch of kids coming for supper. I wonder if the kids aren't all mixed up and in the wrong place or something.

After several students had a chance to think aloud like this in a group, the teach-

er asked the children to work in pairs and to read the rest of the story on their own, alternately reading short sections of text. After reading a section, one student of each pair tried to think aloud, and the other student asked "Is this making sense?" Then the second student read and thought aloud. The teacher walked around the room, listening to pairs of students, offering encouragement, and providing guidance and suggestions as appropriate.

Following is an interchange between one pair of students. At this point in the story, Ella and her sisters and brother, being unable to restrain themselves from eating any longer, have just consumed most of the food set out on what they believed to be their Aunt Lena's table.

Text: [Student 3 reads.] Someone was at the door. It opened, and a short, stout woman came in. Her arms were piled high with shopping bags. "Hello," she said, looking around.

Student 4: Is this part of the story making sense?

Student 3: Yes, I think so. I bet the lady is the kids' aunt because the note said that she went shopping, and now she came home. I think I'll read more.

Text: [Student 3 continues reading.] The girls all turned and looked at the newcomer. "My aunt hasn't gotten back yet," Ella offered.

The woman looked puzzled. She gave a quick glance at the door. "You're expecting your aunt?"

"Yes," Henny replied. "Don't go away. She should be here any minute. Here, let me help you with the packages."

"Thank you, but . . ."

Student 4: Are things making sense now?

Student 3: I'm not sure. I think I'm getting mixed up. If this person is Aunt Lena, Ella wouldn't say what she did. And Aunt Lena would probably be excited and say hello, but she didn't. The book said "The woman looked puzzled." Why would Aunt Lena look puzzled? I'm getting the feeling that something's wrong – somebody's made a mistake.

Student 4: Yeah, I bet the kids got mixed up or something. Let's read more and find out. It's my turn.

Text: [Student 4 reads aloud.] Her packages were set safely on a chair. The woman folded her arms and looked at the children. "Now tell me, who are you?"

"We're the nieces and this is the nephew, Charlie," Ella told her.

The woman smiled and gave a nod. "That's nice. I'm pleased to meet you." Then her eyes fell on the table. A look of dismay passed over her face. "Oh, my goodness! I see you ate up the whole supper!"

Student 3: Think out loud now. Is this making sense?

Student 4: Yeah, I think it is. See, the kids got mixed up and ended up in the wrong place. This isn't their aunt's apartment. It's somebody else's. And this lady–she isn't their aunt at all.

Student 3: But that doesn't make sense. Why would there be a note on the table saying to go ahead and eat supper? Maybe their aunt just doesn't recognize them.

Student 4: [Excited and continues reading]

"Were you invited, too?" Ella asked.

"Who's invited? The supper was for my husband and my son."

"Goodness gracious!" Henny cried. "How many people were supposed to eat here tonight?"

"My dear child, you don't understand. The supper was just for the three of us–my husband, my son, and me. After all, this is my apartment."

Student 4: See, I was right. The kids ended up in the wrong place. Wow! I bet they feel bad, and I bet this lady's going to be mad at them. What a mistake they made. I bet they're going to get in big trouble now.

After the pairs of students finished reading and thinking aloud to the end of the story, the teacher reconvened the class and asked them to share how the think alouds went. Following this discussion, the teacher offered several types of *when* information (Baumann & Schmitt, 1986), which provided the students suggestions about how they might employ the think-aloud "rules" when reading other materials. Specifically, the teacher suggested that the students might try using thinking aloud whenever they became confused while reading books for enjoyment. He also suggested that thinking aloud might help students study for tests, for example, when studying from a science or social studies book. Admittedly, these suggestions only mentioned how thinking aloud might be applied in other contexts. Additional instruction, modeling, and guided practice using literary or content texts would be necessary before students could be expected to actually apply the think-aloud strategy in these different reading situations.

ADAPTATIONS, MODIFICATIONS, AND EXTENSIONS OF THINK-ALOUD INSTRUCTION

Though our research involved an ambitious, intensive program of instruction in thinking aloud that supplemented the regular reading instruction in the classrooms in which we worked, we can envision it being modified or adapted in various ways in other elementary school classrooms. For instance, we would encourage teachers to emphasize the social construction (Vygotsky, 1962, 1978) of think alouds by their students. During Phase 3 of most lessons, children worked in pairs or small groups to apply the various comprehension monitoring strategies, as the preceding sample lesson demonstrates. After reflect-

ing on our research, we believe that this component was very powerful in helping the students internalize the process of thinking aloud. Thus, we encourage teachers who choose to use think aloud as a comprehension-fostering technique to provide students ample opportunities for generating think alouds collaboratively.

As we learned, think aloud can be an effective tool for helping students acquire a range of comprehension monitoring techniques, such as evaluating understanding, predicting and verifying, and self-questioning. Think alouds can also be useful for helping students acquire various high-utility comprehension strategies, such as making inferences, understanding characterization, and constructing main ideas. Further, think alouds can be implemented in various instructional contexts.

For example, for teachers who employ literature-based reading programs, think alouds could be readily and naturally integrated into book discussion times or mini-lessons. If a teacher wished to focus on characterization, for instance, she could model the process of thinking aloud while reading from a book that a group of students in her class has chosen to read. Through think alouds, she would demonstrate the intricacies and subtleties of inferring and responding to story characters. The students could then employ think alouds themselves as they read on and further probed the profiles of characters in the book.

For teachers who use basal reading programs, thinking aloud could be easily integrated into the existing strategy lessons. For example, for a basal strategy lesson on prediction, a teacher could use think aloud to model the prediction process for the students. Then, much as in the preceding sample lesson from our study, he could move to guided practice by having the students try out thinking aloud in a group setting, using a selection from the basal anthology. Finally, to promote ownership of the strategy, he could invite pairs of students to practice thinking aloud to predict and verify events as they read on in the selected story.

Thinking aloud can also be used to promote understanding of informational trade books or content area textbooks. For example, if a teacher wished to integrate instruction in identifying textually important ideas with a reading from a social studies book, she could use think aloud to model the identification of stated and unstated main ideas. She could describe a strategy for identifying main ideas (e.g., Baumann, 1986) and then model its application for the students through think alouds. Next, she could invite students to likewise think aloud as they try to construct main ideas while reading other sections from the social studies book. Students might even try thinking aloud while drafting or revising written compositions related to the social studies content materials they are reading.

As noted previously, transferring the use of thinking aloud to a different context will not occur automatically for many students. Therefore, prior instruction would need to be reviewed and applied in these new contexts. For example, to promote application of thinking aloud during a content reading task, it would be important for a teacher to review the think aloud strategy, model it for the students using the content text, and then provide the students guided practice in the application of the strategy to the content materials.

In conclusion, we found from our research that using think alouds works well for helping students develop an ability to monitor their reading comprehension and to employ fix-up strategies when they detect comprehension difficulties. We also recommend that students participate in the social construction of think alouds. Further, we believe that thinking aloud is an appropriate approach for helping students acquire a variety of broadly applicable comprehension strategies. We observed that students in the think-aloud group in our study participated enthusiastically; they enjoyed thinking aloud; and they clearly felt good about their increasing ability to manage their cognitive processing during reading. Thus, we believe that think alouds provide teachers an effective, useful, and flexible technique for helping students acquire control over their comprehension processing of written texts, that can enhance children's engagement with reading strategies and with the texts themselves.

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